RESEARCH INFORMATION REPORT TO SUPPORT DSEIS ON ENDANGERED AND THREATENED SPECIES OF SEA TURTLES, 1981

REPORT: Review of 1980 Sea Turtle Strandings

FOR: Southeast Regional Office, NMFS, St. Petersburg, FL

BY: Southeast Fisheries Center, NMFS, Miami, FL

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Introduction:

The 1980 Stranding Data Base has been fraught with duplications and errors reflecting a deficiency in quality control. In its defense, the stranding network operated exceedingly well for a first year effort. With diligence and work there is no reason that the reliability of the data cannot be improved in successive years.

Attached are five figures and three tables summarizing the <u>edited</u> 1980 data. This is the best available data on strandings. Confidence limits cannot be placed around the numbers because the fundamental information necessary (coverage and effort estimates) are lacking.

Results:

There were, in the newspeak, 1898 COB's from Massachusetts through Texas in 1980. The majority (1423) were along the Southeast Atlantic Coast from South Carolina through Florida. The Northeast, extending from North Carolina through Massachusetts had 400 strandings and the Gulf of Mexico 75.

In all states, except Massachusetts where the Kemp's ridley was the most common, the loggerhead stranded more frequently.

The peak stranding season for most of the reporting areas was mid-summer. This is particularly true for the Mid-Atlantic and Southeastern states. Texas exhibited a possible bimodal stranding season with May and July being the peaks in the season. Bimodal stranding seasons in Texas have been reported historically by Rabilais and Rabilais (Contributions in Marine Science Vol. 23, August 1980), but their data indicates that April and November are the peak months. This discrepancy could be real or it could be an artifact of a change in effort or coverage over the year (perhaps due to Hurricane Allen). In Massachusetts, the peak stranding season was later in the year reflecting a possible change in temperature

regime as winter approaches. Since there are no estimates available for effort or coverage, seasonality must be interpreted carefully and with the full knowledge that what the data show may not be what is happening in the real world.

The curved carapace length frequency distributions over time for stranded sea turtles in the Southeast show that the most common size is the 60 to 70 centimeter interval. Towards the end of the season a large number of small (5 to 10 centimeter) individuals were reported stranded. This could be due to late season hatchings or could be the result of mismeasurements. Again. there are no estimates of observer accuracy and the data may reflect trends due purely to errors and not to true phenomena.

Table 3 was compiled by a telephone call to the State Coordinators. Florida, Georgia, South Carolina, and Texas comprise the most important areas where the Stranding Network is operational. A relative difference was derived for each of these states. The difference ranged from 34.7% (Florida) to 3.8% (South Carolina). There is no way of verifying the state's records since, these strandings are undocumented. The relative difference does point out some of the shortcomings in the 1980 data.

Discussion:

The original intent of the Stranding Network was to provide a mechanism for documenting stranding events at a single location and providing turtle hard parts for research and museum curation. There was never any intention to use these data for population analysis or for mortality studies. It is true that certain biological information gained from stranding events can provide certain useful data bits for mortality studies, particularly in regard to size class or physiological damage, but a stranding event by itself provides no information as to what killed the individual. Using stranding data as a basis for closure of a fishery or for the implementation of regulations on a fishery, reflects a naivete. There are three important

unknowns in the data which make analysis essentially impossible. First,

the level of effort is not known and attempts to determine effort have been

largely unsuccessful due to the volunteer nature of the network. Secondly,

coverage is unknown and can only be guessed from limited information. The

third, and most important unknown, is the proof that turtles killed in

shrimp trawl actually strand. To my knowledge, there has been, and

quite likely never will be, any evidence of a trawl related death becoming

a COB - there are just too many other things that can happen to a carcass

at sea. Fixing the blame of COB's on shrimp trawling, without determining

the above unknowns, is conjectural and circumstantial. No court of law would

accept these data as meaningful evidence.

FIG. 4

1980 STRANDING DATA SUMMARY

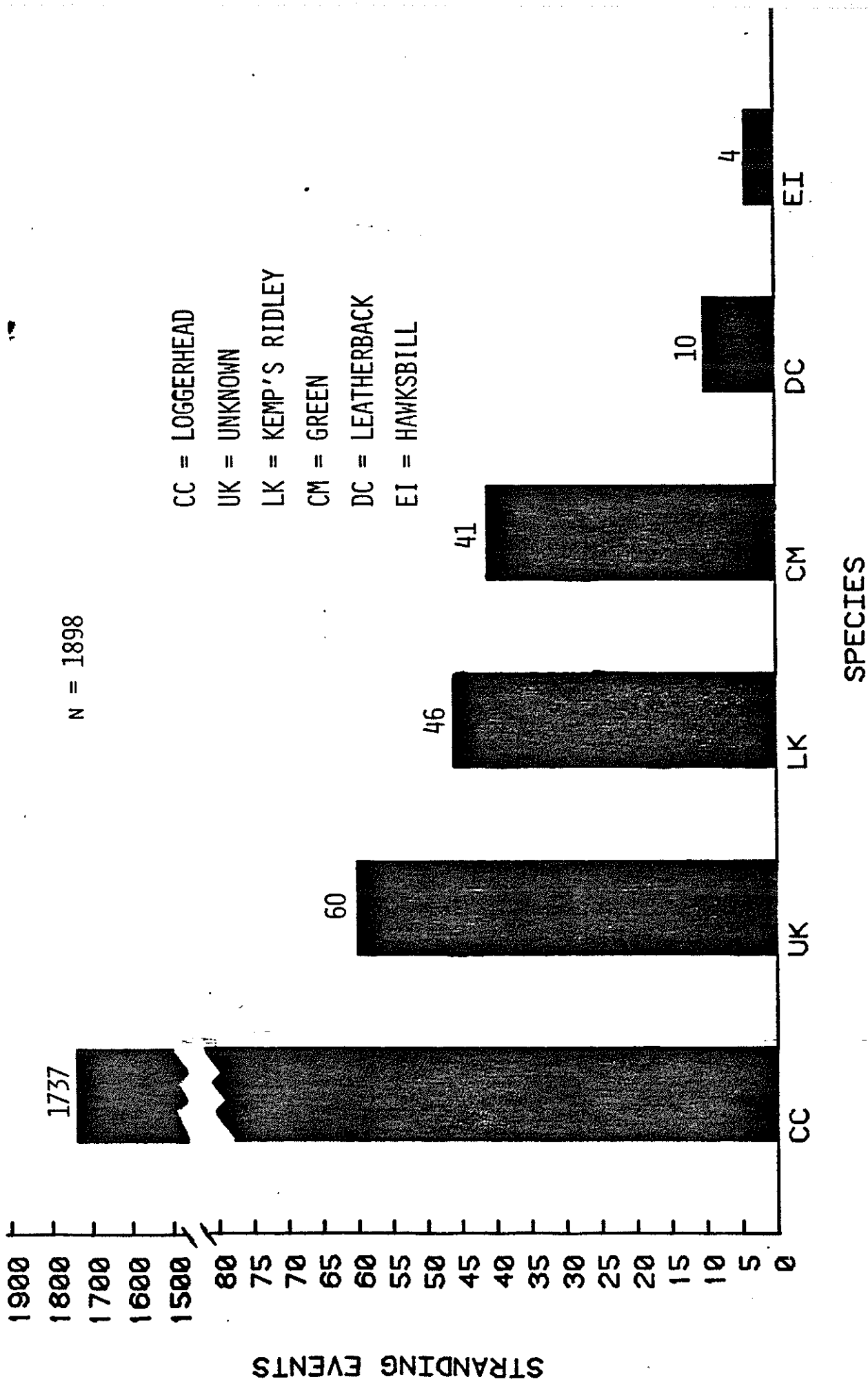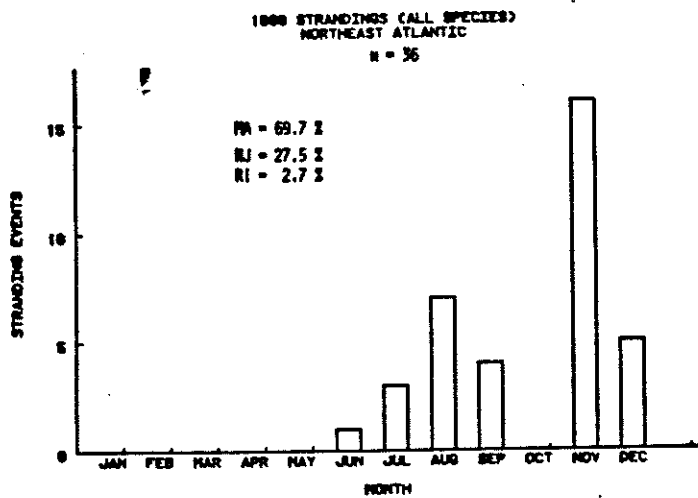SHOWING BREAKDOWN OF TOTAL SEA TURTLE STRANDING
EVENTS BY SPECIES

N = 1898

CC = LOGGERHEAD

UK = UNKNOWN

LK = KEMP'S RIDLEY

CM = GREEN

DC = LEATHERBACK

EI = HAWKSBILL

STRANDING EVENTS

1900
1800
1700
1600
1500
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0

1737

60

46

41

10

4

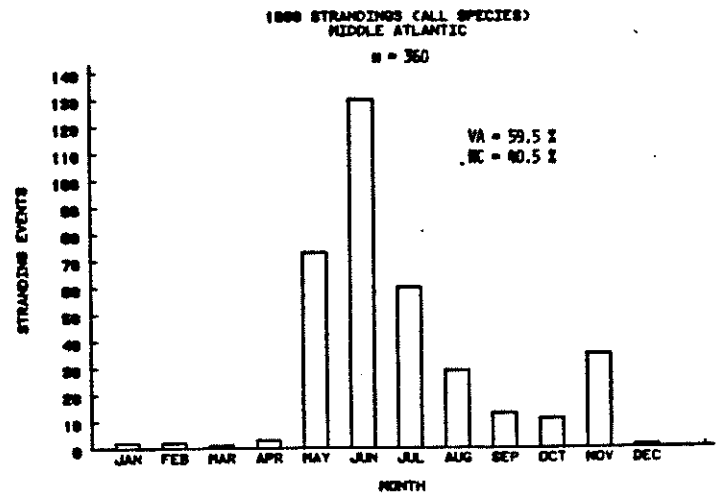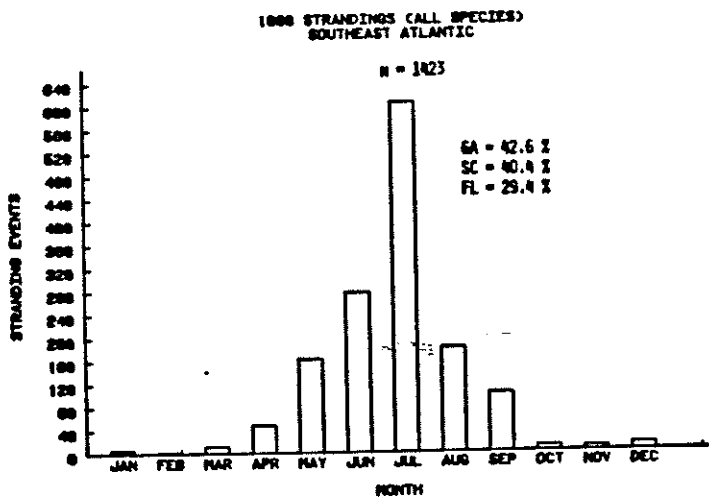CC   UK   LK   CM   DC   EI

SPECIES

FIG. 5 REGIONAL SUMMARY OF STRANDING EVENTS BY TIME
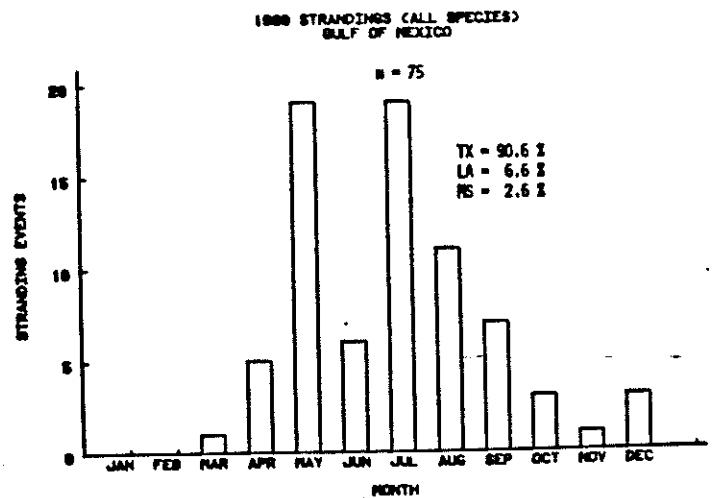## COMBINED SPECIES INCLUDING UNKNOWNS

MASSACHUSETTS,RHODE ISLAND
NEW JERSEY

VIRGINIA, MARYLAND
NORTH CAROLINA

GEORGIA, SOUTH CAROLINA
FLORIDA

TEXAS, LOUISIANA
MISSISSIPPI
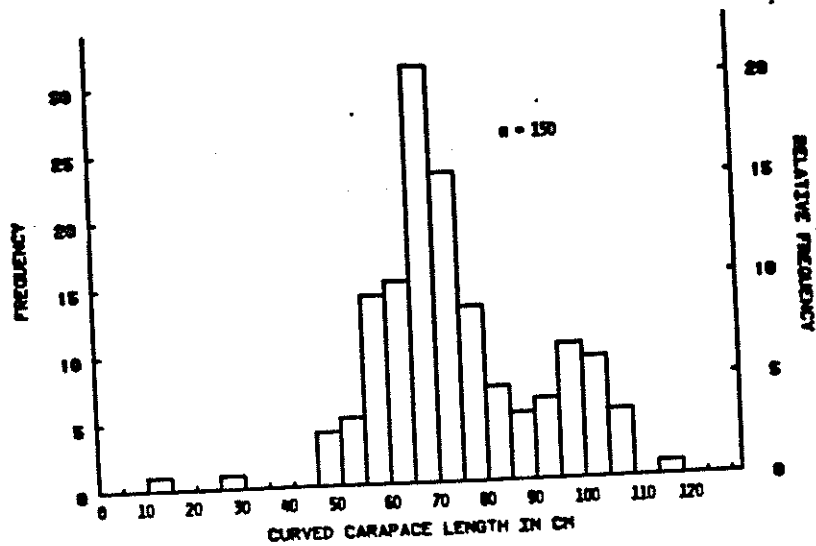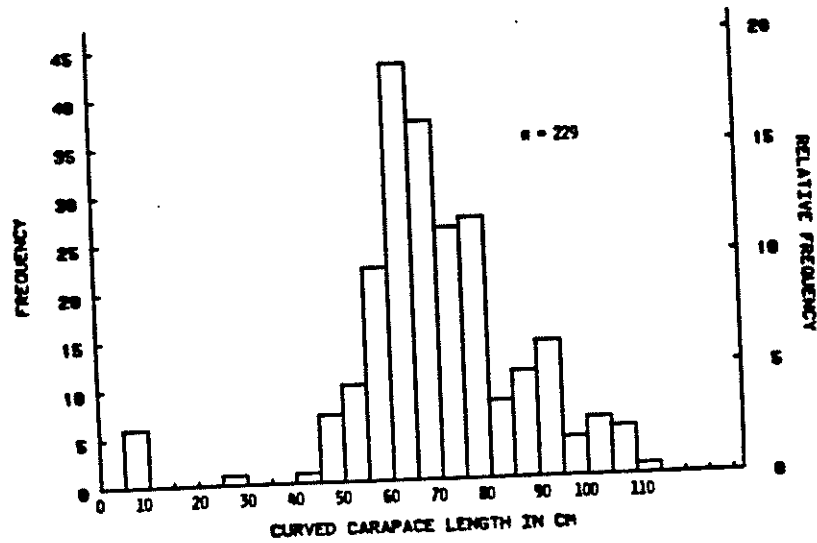
FIG. 6

LENGTH FREQUENCY BREAKDOWN OF STRANDED LOGGERHEADS - SOUTHEAST(FL,GA,SC)

LOGGERHEAD STRANDINGS
MAY 1988

LOGGERHEAD STRANDINGS
JUNE 1988

LOGGERHEAD STRANDINGS
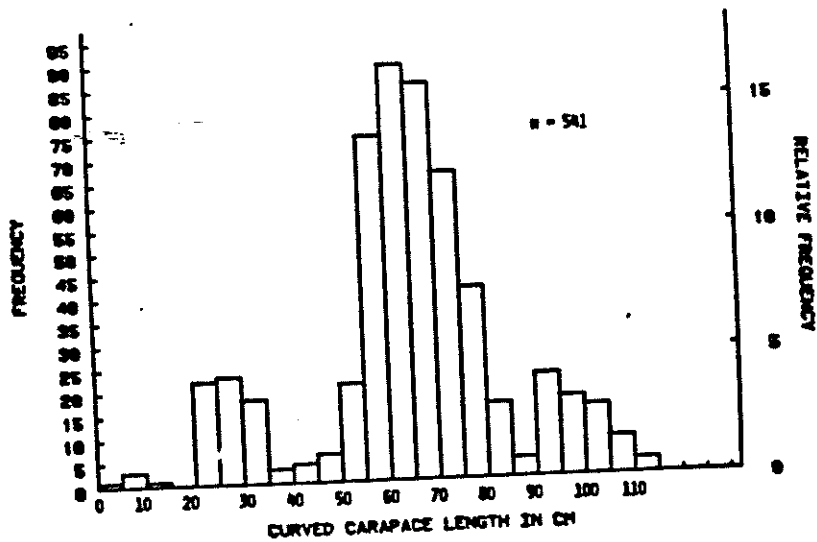JULY 1988

LOGGERHEAD STRANDINGS
AUGUST 1988

N = 135

FREQUENCY

RELATIVE FREQUENCY

CURVED CARAPACE LENGTH IN CM

LOGGERHEAD STRANDINGS
SEPTEMBER 1988

N = 67

FREQUENCY

RELATIVE FREQUENCY

CURVED CARAPACE LENGTH IN CM
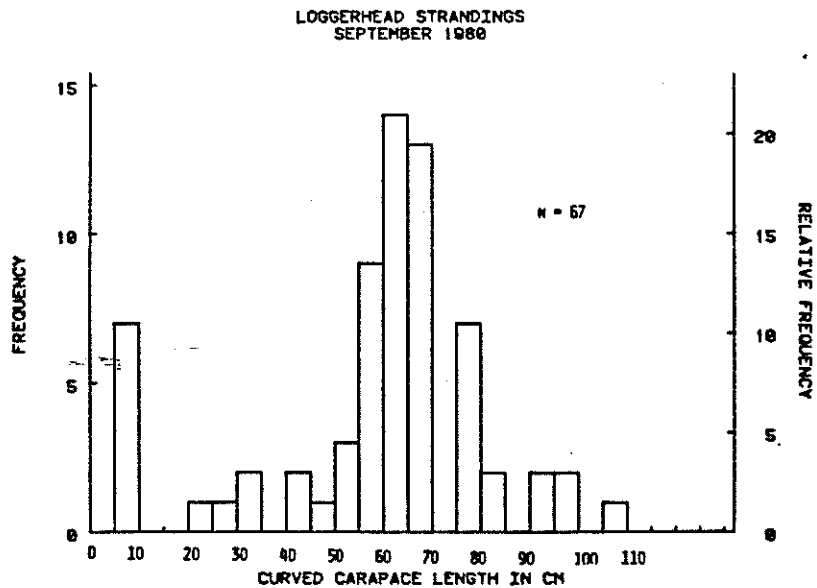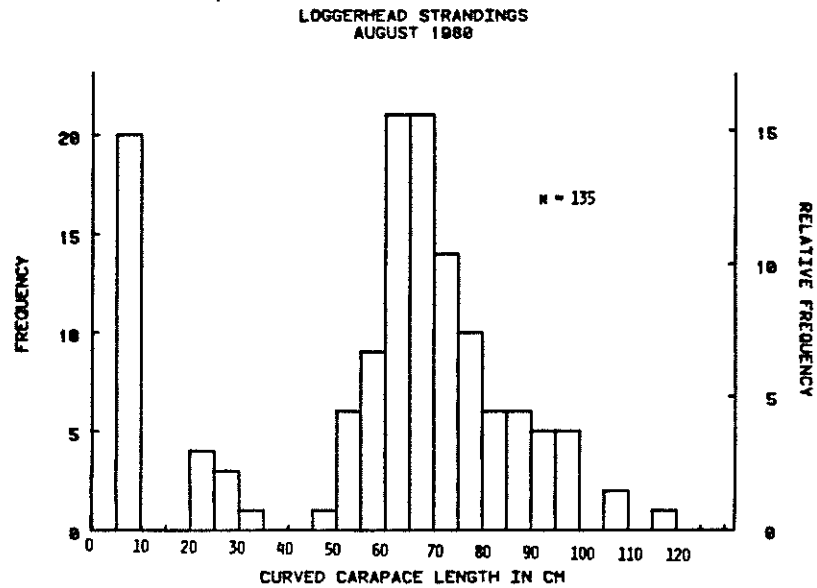
Table 1

Total 1980 Sea Turtle Strandings by Month by State
Combined Species

COUNT	MONTH	FLORIDA FL	GEORGIA GA	LOUISIANA LA	MASSACHUSETTES MA	MISSISSIPPI MS	NORTH CAROLINA NC	NEW JERSEY NJ	RHODE ISLAND RI	SOUTH CAROLINA SC	TEXAS TX	VA	ROW TOTAL
0.	JANUARY	0	0	0	2	0	0	0	0	0	0	0	2
1.	FEBRUARY	6	0	0	0	0	2	0	0	0	0	0	8
2.	MARCH	1	0	0	0	0	2	0	0	1	0	0	4
3.	APRIL	9	0	0	0	0	1	0	0	3	1	0	14
4.	MAY	14	3	0	0	0	2	0	0	31	5	1	56
5.	JUNE	26	103	0	0	0	14	0	0	33	19	59	254
6.	JULY	54	137	1	0	0	21	1	0	86	5	109	414
7.	AUGUST	62	238	1	3	0	42	0	0	305	18	18	687
8.	SEPTEMBER	23	68	2	3	0	21	4	0	90	9	8	228
9.	OCTOBER	20	56	0	0	0	7	3	1	26	7	6	126
10.	NOVEMBER	8	1	0	0	0	3	2	0	0	3	8	25
11.	DECEMBER	7	0	1	16	0	31	0	0	0	0	4	59
12.		12	0	0	4	2	0	1	0	0	1	1	21
	COLUMN TOTAL	242	606	5	28	2	146	11	1	575	68	214	1898

TABLE 2
1980 ENDANGERED SPECIES STRANDINGS
(EXCLUDING LOGGERHEADS AND UNKNOWNS)
BY STATE BY MONTH

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep.	Oct	Nov	Dec	TOTAL
MA							2 DC	2 DC			1 CM 11 LK		1 CM 4 DC 11 LK
RI									1 DC				1 DC
NJ										1 DC			1 DC
NC													
SC					1 LK	1 CM	4 CM 1 LK		1 LK				5 CM 3 LK
GA							3 LK	1 LK					4 LK
FL	1 CM 1 DC	1 CM	1 CM	5 CM	2 CM 1 LK	2 CM 3 LK	1 CM	1 CM	3 CM		3 CM 1 EI	6 CM	26 CM 4 LK 1 DC 1 EI
MS													
LA						1 CM		1 LK			1 LK		1 CM 2 LK
TX					2 CM 3 LK	2 CM	1 CM 2 LK	1 EI 6 LK	2 CM 2 EI	2 LK			7 CM 13 LK 3 EI
VA					2 DC 3 LK	1 DC 1 LK		1 LK	1 LK	3 LK			3 DC 9 LK
TOTAL	1 CM 1 DC	1 CM	1 CM	5 CM	4 CM 8 LK 2 DC	6 CM 4 LK 1 DC	6 CM 6 LK 2 DC	1 CM 9 LK 1 EI 2 DC	5 CM 2 LK 2 EI 2 DC	5 LK 1 DC	4 CM 12 LK 1 EI	6 CM	41 CM 46 LK 4 EI 10 DC

2 CM strandings for the year; one of which the month is unrecorded

KEY: CM = Green
         LK = Kemps Ridley
         EI = Hawksbill
         DC = Leatherback

TABLE 3

COMPARASION OF 1980 DOCUMENTED AND UNDOCUMENTED
SEA TURTLE STRANDINGS (ALL SPECIES COMBINED)

	SEFC DOCUMENTED STRANDINGS	UNDOCUMENTED STRANDINGS *	TOTAL	% DIFFERENCE
FLORIDA	242	129	371	34.7
GEORGIA	606	188	794	23.6
TEXAS	68	87	19	21.8
SOUTH CAROLINA	575	23	598	3.8

* DATA OBTAINED FROM STATE COORDINATORS VIA TELEPHONE

FIG. 7

DOCUMENTED vs TOTAL STRANDINGS
ALL SPECIES COMBINED